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Invited paper

1 **Use and abuse of trace metal concentrations in plant tissue for biomonitoring and phytoextraction**
J. Mertens, S. Luyssaert, K. Verheyen

Plants that accumulate soil metals in their aboveground biomass are often incorrectly considered to be suitable for monitoring soil pollution or for phytoextraction purposes.

5 **Are N and S deposition altering the mineral composition of Norway spruce and Scots pine needles in Finland?**
S. Luyssaert, M. Sulkava, H. Raitio, J. Hollmén

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18 **Polychlorinated biphenyls in polysulfide sealants—Occurrence and emission from a landfill station**
N.J. Persson, H. Pettersen, R. Ishaq, J. Axelman, C. Bandh, D. Broman, Y. Zebühr, T. Hammar

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28 **Variation in the response of the invasive species *Potamopyrgus antipodarum* (Smith) to natural (cyanobacterial toxin) and anthropogenic (herbicide atrazine) stressors**
C. Gerard, V. Poullain

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34 **An inter-laboratory study to test the ability of amendments to reduce the availability of Cd, Pb, and Zn in situ**
S. Brown, B. Christensen, E. Lombi, M. McLaughlin, S. McGrath, J. Colpaert, J. Vangronsveld

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46 **Uptake of heavy metals and As by *Brassica juncea* grown in a contaminated soil in Aznalcóllar (Spain): The effect of soil amendments**
R. Clemente, D.J. Walker, M.P. Bernal

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59 **Influence of glyphosate and its formulation (Roundup®) on the toxicity and bioavailability of metals to *Ceriodaphnia dubia***
M.T.K. Tsui, W.-X. Wang, L.M. Chu

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69 **Conditions for effective removal of pyrene from an artificially contaminated soil using *Pseudomonas aeruginosa* 57SJ rhamnolipids**
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77 **Effects of nitrogen enrichment on coastal dune grassland: A mesocosm study**
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86 **Phytoremediation in the tropics – influence of heavy crude oil on root morphological characteristics of graminoids**
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100 Plant-specific responses to zinc contamination in a semi-field lysimeter and on hydroponics
R. Bernhard, J.A.C. Verkleij, H.J.M. Nelissen, J.P.M. Vink

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109 Evaluation of the variegated scallop *Chlamys varia* as a biomonitor of temporal trends of Cd, Cu, and Zn in the field
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121 Terrestrial avoidance behaviour tests as screening tool to assess soil contamination
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132 Depauperate macroinvertebrates in a mine affected stream: Clean water may be the key to recovery
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142 Atmospheric depositions around a heavily industrialized area in a seasonally dry tropical environment of India
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153 Assessing the impact of ambient ozone on growth and productivity of two cultivars of wheat in India using three rates of application of ethylenediurea (EDU)
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161 Total mercury, methyl mercury, and carbon in fresh and burned plants and soil in Northwestern Ontario
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167 Background levels of heavy metals in surficial sediments of the Gulf of Lions (NW Mediterranean): An approach based on ^{133}Cs normalization and lead isotope measurements
V. Roussiez, W. Ludwig, J.-L. Probst, A. Monaco

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178 Heavy metal concentrations in a soil–plant–snail food chain along a terrestrial soil pollution gradient
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201 Synthetic fibers as an indicator of land application of sludge
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212 Influence of solid dairy manure and compost with and without alum on survival of indicator bacteria in soil and on potato
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219 Investigation of the efficiency of existing air pollution monitoring sites in the state of Kuwait
M.S. Al-Rashidi, V. Nassehi, R.J. Wakeman

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230 RNA interference-based (RNAi) suppression of AtMPK6, an *Arabidopsis* mitogen-activated protein kinase, results in hypersensitivity to ozone and misregulation of AtMPK3
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238 Estimation of element deposition derived from road traffic sources by using mosses
H.G. Zechmeister, D. Hohenwallner, A. Riss, A. Hanus-Illnar

Cr, Mo, Sb, Zn, As, Fe, V, Cu, Ni, and Co were identified as road traffic emissions and were mainly deposited within a distance of 250 m from major roads.

250 Diuron mobility through vineyard soils contaminated with copper
A.R. Jacobson, S. Dousset, N. Guichard, P. Baveye, F. Andreux

Cu accumulation, from Bordeaux mixture, in vineyard soils may be affecting microbial activity and thus slightly increasing the persistence of diuron in the soils.

260 Efficacy and toxicity of self-polishing biocide-free antifouling paints
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268 Adaptive sampling based on the cumulative distribution function of order statistics to delineate heavy-metal contaminated soils using kriging
K.-W. Juang, D.-Y. Lee, Y.-L. Teng

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278 Adsorption of arsenate on soils. Part 1: Laboratory batch experiments using 16 Chinese soils with different physiochemical properties
W. Jiang, S. Zhang, X.-q. Shan, M. Feng, Y.-G. Zhu, R.G. McLaren

The Langmuir two-surface equation fits arsenate adsorption onto soils.

285 Adsorption of arsenate on soils. Part 2: Modeling the relationship between adsorption capacity and soil physiochemical properties using 16 Chinese soils
W. Jiang, S. Zhang, X.-q. Shan, M. Feng, Y.-G. Zhu, R.G. McLaren

Citrate-dithionite extractable Fe has the most important positive influence on arsenate adsorption on soils.

290 Behavior and source characteristic of PCBS in urban ambient air of Yokohama, Japan
K.-S. Kim, S. Masunaga

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299 Towards a more appropriate water based extraction for the assessment of organic contaminant availability
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307 A biomarker model of sublethal genotoxicity (DNA single-strand breaks and adducts) using the sentinel organism *Aporrectodea longa* in spiked soil
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316 Prediction of [3-^{14}C]phenyldodecane biodegradation in cable insulating oil-spiked soil using selected extraction techniques
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324 Dynamics of Cd, Cu and Zn accumulation in organs and sub-cellular fractions in field transplanted juvenile yellow perch (*Perca flavescens*)
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338 Fish community responses to metal pollution
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350 Dissolved oxygen and dietary phosphorus modulate utilization and effluent partitioning of phosphorus in rainbow trout (*Oncorhynchus mykiss*) aquaculture
N.K. McDaniel, S.H. Sugiura, T. Kehler, J.W. Fletcher, R.M. Coloso, P. Weis, R.P. Ferraris

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358 Practical and mechanistic aspects of the removal of cadmium from aqueous systems using peat
P. Fine, A. Scagnossi, Y. Chen, U. Mingelgrin

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368 Survival, Pb-uptake and behaviour of three species of earthworm in Pb treated soils determined using an OECD-style toxicity test and a soil avoidance test
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378 Paradigm lost, paradigm found: The re-emergence of hormesis as a fundamental dose response model in the toxicological sciences
E.J. Calabrese

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L.C. Batty, L. Atkin, D.A.C. Manning

Mine-water treatment wetlands can be engineered to provide habitats for ecological communities.

420 Island biogeography and landscape structure: Integrating ecological concepts in a landscape perspective of anthropogenic impacts in temporary wetlands
D.G. Angeler, M. Alvarez-Cobelas

Environmental risk assessment in temporary wetlands may benefit from consideration of island biogeography theory and landscape structure.

425 Effects of a mixture of tetracyclines to *Lemna gibba* and *Myriophyllum sibiricum* evaluated in aquatic microcosms
R.A. Brain, C.J. Wilson, D.J. Johnson, H. Sanderson, K. Bestari, M.L. Hanson, P.K. Sibley, K.R. Solomon

Mixtures of tetracycline antibiotics pose a risk to submerged but not floating aquatic plants.

443 The impact of pumped water from a de-watered Magnesian limestone quarry on an adjacent wetland: Thrislington, County Durham, UK
W.M. Mayes, A.R.G. Large, P.L. Younger

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455 Use of the aquatic lichen *Dermatocarpon luridum* as bioindicator of copper pollution: Accumulation and cellular distribution tests
F. Monnet, F. Bordas, V. Deluchat, P. Chatenet, M. Botineau, M. Baudu

The copper concentration in thalli of aquatic lichens is correlated with pollution intensity.

462 Atmospheric dry deposition fluxes of trace elements measured in Bursa, Turkey
Y. Tasdemir, C. Kural

Mechanical turbulence has an important influence on re-suspension and dry deposition of trace elements in an urban area.

473 Effects of increased deposition of atmospheric nitrogen on an upland moor: Nitrogen budgets and nutrient accumulation
M.G. Pilkington, S.J.M. Caporn, J.A. Carroll, N. Cresswell, J.A. Lee, B. Reynolds, B.A. Emmett

Additions of 40 kg N ha^{-1} over 11 years accumulated mainly in plant and litter compartments; higher additions accumulated mainly in the organic and mineral horizons.

485 Evidence of immunomodulation in nestling American kestrels (*Falco sparverius*) exposed to environmentally relevant PBDEs
K.J. Fernie, G. Mayne, J.L. Shutt, C. Pekarik, K.A. Grasman, R.J. Letcher, K. Drouillard

Exposure to environmentally relevant polybrominated diphenyl ethers (congeners and concentrations) resulted in the immunomodulation of nestling American kestrels.

494 Heavy metal and Pb isotopic compositions of aquatic organisms in the Pearl River Estuary, South China
C.C.M. Ip, X.D. Li, G. Zhang, C.S.C. Wong, W.L. Zhang

Relative high concentrations of Cd were found in crab, shrimp and shellfish samples while high concentration of Pb was found in fish, particularly from the anthropogenic inputs.

505 Heavy metal concentrations in soil and earthworms in a floodplain grassland
P.C.J. van Vliet, S.E.A.T.M. van der Zee, W.C. Ma

The accumulation of metals by earthworms is species dependent and affected by flooding.

517 Copper and trace element fractionation in electrokinetically treated methanogenic anaerobic granular sludge
J. Virkutyte, E. van Hullebusch, M. Sillanpää, P. Lens

Electrokinetic treatment of copper contaminated anaerobic granular sludge at 0.15 mA cm^{-2} for 14 days induces copper and trace metal mobility as well as changes in their fractionation (i.e. bonding forms).

529 Estimation of sources and inflow of dioxins and polycyclic aromatic hydrocarbons from the sediment core of Lake Suwa, Japan
Y. Ikenaka, H. Eun, E. Watanabe, F. Kumon, Y. Miyabara

Large amounts of dioxins and PAHs flowed into a lake in flood events.

538 Zinc and copper uptake by plants under two transpiration rates. Part I. Wheat (*Triticum aestivum* L.)
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Cu and Zn levels normally found in treated wastewater may be beneficial rather than toxic to wheat plants.

548 Zinc and copper uptake by plants under two transpiration rates. Part II. Buckwheat (*Fagopyrum esculentum* L.)
F.H. Tani, S. Barrington

Cu and Zn levels normally found in treated wastewater may be beneficial rather than toxic to buckwheat plants.